

Kathleen Fuller

Access DB# 160084

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Laura Fuller Examiner #: 71724 Date: 7/16/05
Art Unit: 30 Phone Number 312/291-2729 Serial Number: 10/142,854
Mail Box and Bldg/Room Location: 6CP3 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc., if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: See front Page

Inventors (please provide full names):

Earliest Priority Filing Date: III

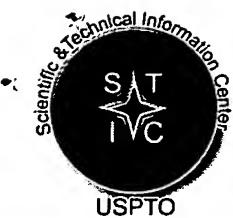
For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

I would you like to a cell comprising an electrolyte comprising a phosphate derivative of formula (2) wherein each R⁴ is either monovalent substituent or a halogen element where at least one of R⁴ is a halogen element 3≤n≤15. See p26 (attached to definition R⁴).

If can find above please then search for other cell comprising an electrolyte comprising phosphate derivative of formula (1).

Thanks,
Laura

STAFF USE ONLY		Type of Search	Vendors and cost where applicable
Searcher:	<u>X. Fuller</u>	NA Sequence (#)	STN <input checked="" type="checkbox"/>
Searcher Phone #:		AA Sequence (#)	Dialog <input type="checkbox"/>
Searcher Location:		Structure (#)	Questel/Orbit <input type="checkbox"/>
Date Searcher Picked Up:		Bibliographic	Dr. Link <input type="checkbox"/>
Date Completed:	<u>8/10/05</u>	Litigation	Lexis/Nexis <input type="checkbox"/>
Searcher Prep & Review Time:	<u>30</u>	Fulltext	Sequence Systems <input type="checkbox"/>
Clerical Prep Time:		Patent Family	WWW/Internet <input type="checkbox"/>
Online Time:	<u>26</u>	Other	Other (specify) <input type="checkbox"/>



STIC Search Report

EIC 1700

STIC Database Tracking Number: 160084

TO: Laura Weiner
Location: 6C83
Art Unit : 1745
August 10, 2005

Case Serial Number: 10048054

From: Kathleen Fuller
Location: EIC 1700
REMSEN 4B28
Phone: 571/272-2505
Kathleen.Fuller@uspto.gov

Search Notes

I searched the formula 1 first; there are some good answers. Then I realized you wanted formula 2 . There were 187 structures but none with utility. I printed out 2 answers where there were 3-15 phosphorus per the claims-none on utility.



STIC Search Results Feedback Form

EIC17000

Questions about the scope or the results of the search? Contact *the EIC searcher or contact:*

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

➤ I am an examiner in Workgroup: Example: 1713

➤ Relevant prior art **found**, search results used as follows:

- 102 rejection
- 103 rejection
- Cited as being of interest.
- Helped examiner better understand the invention.
- Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- Foreign Patent(s)
- Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

➤ Relevant prior art **not found**:

- Results verified the lack of relevant prior art (helped determine patentability).
- Results were not useful in determining patentability or understanding the invention.

Comments:

10/048054

WEINER 10/936148 08/10/2005

RPage 1

=> file reg

FILE 'REGISTRY' ENTERED AT 11:19:04 ON 10 AUG 2005
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Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES: 9 AUG 2005 HIGHEST RN 859282-03-4
DICTIONARY FILE UPDATES: 9 AUG 2005 HIGHEST RN 859282-03-4

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 18, 2005

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

*
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added, *
* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
*

Structure search iteration limits have been increased. See HELP SLIMITS
for details.

Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
<http://www.cas.org/ONLINE/DBSS/registryss.html>

=> file hcaplus

FILE 'HCAPLUS' ENTERED AT 11:19:08 ON 10 AUG 2005
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FILE COVERS 1907 - 10 Aug 2005 VOL 143 ISS 7
FILE LAST UPDATED: 9 Aug 2005 (20050809/ED)

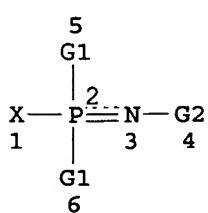
New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate
substance identification.

=> d que

L3

STR



1, 582 structures from this query
formula I

VAR G1=A/X
VAR G2=C/SI/GE/SN/N/P/AS/SB/BI/O/S/SE/TE/PO

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 6

STEREO ATTRIBUTES: NONE

L5	1582 SEA FILE=REGISTRY SSS FUL L3		
L6	1038 SEA FILE=HCAPLUS ABB=ON L5		
L7	17 SEA FILE=HCAPLUS ABB=ON L6 (L) ELECTROLYT?		
L8	13 SEA FILE=HCAPLUS ABB=ON L7 AND ELECTROCHEM?/SC, SX, AB, BI		
L9	12 SEA FILE=HCAPLUS ABB=ON L6 AND BATTER?		
L10	14 SEA FILE=HCAPLUS ABB=ON L8 OR L9		

=> d 110 bib abs ind hitstr 1-14

14 CA references with utility

L10 ANSWER 1 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2005:368511 HCAPLUS

DN 142:433056

TI Secondary nonaqueous electrolyte battery

IN Koto, Tomoko

PA Japan Storage Battery Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2005116306	A2	20050428	JP 2003-348133	20031007
PRAI JP 2003-348133		20031007		

AB The battery has a cathode, containing a Li-Ni-Mn composite oxide :
Lix Ni_yMn_{2-y}O_{4-δ} (0 < x < 1.1; 0.45 < y < 0.55; and 0 ≤ δ < 0.4) as a cathode active mass, an anode, and a nonaq. electrolyte solution; where the electrolyte solution contains 0.1-20 mass% phosphazene derivative

IC ICM H01M010-40

ICS H01M004-02; H01M004-58

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary lithium battery cathode lithium manganese nickel oxide; battery electrolyte phosphazene deriv

IT Battery cathodes

Battery electrolytes

(cathodes containing lithium manganese nickel oxides and electrolytes containing phosphazene derivs. for secondary lithium batteries)

IT Polyphosphazenes

RL: MOA (Modifier or additive use); USES (Uses)
(cyclic; cathodes containing lithium manganese nickel oxides and electrolytes containing phosphazene derivs. for secondary lithium batteries)

IT Secondary batteries

(lithium; cathodes containing lithium manganese nickel oxides and electrolytes containing phosphazene derivs. for secondary lithium batteries)

IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 7782-42-5, Graphite, uses 12031-75-3, Lithium manganese nickel oxide (LiMn_{1.5}Ni_{0.5}O) 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(cathodes containing lithium manganese nickel oxides and electrolytes containing phosphazene derivs. for secondary lithium batteries)

IT 850650-07-6

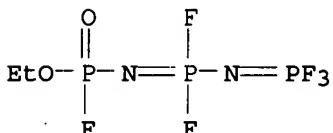
RL: MOA (Modifier or additive use); USES (Uses)
(cathodes containing lithium manganese nickel oxides and electrolytes containing phosphazene derivs. for secondary lithium batteries)

IT 850650-07-6

RL: MOA (Modifier or additive use); USES (Uses)
(cathodes containing lithium manganese nickel oxides and electrolytes containing phosphazene derivs. for secondary lithium batteries)

RN 850650-07-6 HCPLUS

CN Phosphoramidofluoridic acid, [difluoro[(trifluorophosphoranylidene)amino]phosphoranylidene]-, ethyl ester (9CI) (CA INDEX NAME)



L10 ANSWER 2 OF 14 HCPLUS COPYRIGHT 2005 ACS on STN

AN 2004:589783 HCPLUS

DN 141:126373

TI Separator for nonaqueous electrolyte battery

IN Kanno, Hiroshi; Otsuki, Masashi; Eguchi, Shinichi

PA Bridgestone Corporation, Japan

SO PCT Int. Appl., 32 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004062002	A1	20040722	WO 2003-JP16360	20031219

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO,

NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ,
 TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
 RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,
 BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE,
 ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK,
 TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI JP 2002-380683 A 20021227

AB The separator, which is incombustible even when the inside of a battery has a high temperature and useful for a primary or secondary Li battery, comprises a micro-porous film formed by adding a phosphazene derivative and/or an isomer of a phosphazene derivative to a polymer.

IC ICM H01M002-16

ICS H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST nonaq electrolyte battery incombustible separator phosphazene deriv added polymer

IT Primary battery separators

Secondary battery separators

(separators containing phosphazene derivative added polymers for primary and secondary lithium batteries)

IT 7439-93-2, Lithium, uses

RL: DEV (Device component use); USES (Uses)

(anode; separators containing phosphazene derivative added polymers for primary and secondary lithium batteries)

IT 1313-13-9, Manganese dioxide, uses 12190-79-3, Cobalt lithium oxide (CoLiO₂)

RL: DEV (Device component use); USES (Uses)

(cathode; separators containing phosphazene derivative added polymers for primary and secondary lithium batteries)

IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate 105-58-8,

Diethyl carbonate 957-13-1 1184-10-7 2397-48-0 9002-88-4,

Polyethylene 14283-07-9, Lithium tetrafluoroboroborate 33027-68-8

722454-84-4 722454-86-6 724792-59-0

RL: DEV (Device component use); USES (Uses)

(separators containing phosphazene derivative added polymers for primary and secondary lithium batteries)

IT 724792-60-3

RL: DEV (Device component use); USES (Uses)

(separators containing phosphazene derivative added polymers for primary and secondary nonaq. electrolyte batteries)

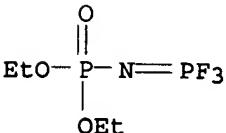
IT 722454-84-4 722454-86-6

RL: DEV (Device component use); USES (Uses)

(separators containing phosphazene derivative added polymers for primary and secondary lithium batteries)

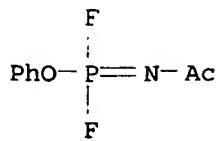
RN 722454-84-4 HCPLUS

CN Phosphoramicidic acid, (trifluorophosphoranylidene)-, diethyl ester (9CI) (CA INDEX NAME)



RN 722454-86-6 HCPLUS

CN Phosphorodifluoridimidic acid, acetyl-, phenyl ester (9CI) (CA INDEX NAME)



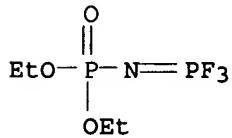
L10 ANSWER 3 OF 14 HCPLUS COPYRIGHT 2005 ACS on STN
 AN 2004:570217 HCPLUS
 DN 141:126304
 TI Additive for secondary **battery** nonaqueous electrolyte solution
 and the **battery**
 IN Otsuki, Masashi; Horikawa, Yasuro
 PA Bridgestone Corporation, Japan
 SO PCT Int. Appl., 33 pp.
 CODEN: PIXXD2
 DT Patent
 LA Japanese
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2004059782	A1	20040715	WO 2003-JP16592	20031224
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
PRAI JP 2002-377142	A	20021226		
AB	The additive comprises a phosphazene derivative represented by R13P = N-X (R1 = halo or monovalent substituent; and X = C, Si, N, P, O and/or S containing organic group). The battery has a nonaq. electrolyte solution comprising the above additive, a cathode, and an anode.			
IC	ICM H01M010-40			
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology)			
ST	secondary lithium battery nonaq electrolyte additive phosphazene deriv			
IT	Battery electrolytes (additives containing phosphazene derivs. for secondary battery electrolytes)			
IT	Secondary batteries (lithium; additives containing phosphazene derivs. for secondary battery electrolytes)			
IT	96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 12190-79-3, Cobalt lithium oxide (CoLiO ₂) 21324-40-3, Lithium hexafluorophosphate			
	RL: DEV (Device component use); USES (Uses) (additives containing phosphazene derivs. for secondary battery electrolytes)			
IT	2397-48-0 722454-84-4 722454-85-5 722454-86-6			
	RL: MOA (Modifier or additive use); USES (Uses) (additives containing phosphazene derivs. for secondary battery electrolytes)			
IT	722454-84-4 722454-86-6			

RL: MOA (Modifier or additive use); USES (Uses)
 (additives containing phosphazene derivs. for secondary **battery**
electrolytes)

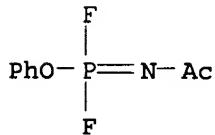
RN 722454-84-4 HCAPLUS

CN Phosphoramicidic acid, (trifluorophosphoranylidene)-, diethyl ester (9CI)
 (CA INDEX NAME)



RN 722454-86-6 HCAPLUS

CN Phosphorodifluoridimidic acid, acetyl-, phenyl ester (9CI) (CA INDEX
 NAME)



RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 4 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:162949 HCAPLUS

DN 140:202437

TI Improvement of pigment-sensitized photoelectrochemical cell

IN Yoshikawa, Masato; Ohno, Shingo; Kobayashi, Taichi; Sugimura, Takayuki;
 Iwabuchi, Yoshinori; Shiino, Osamu; Sugiyama, Hideo; Horikawa, Yasuo;
 Toyosawa, Shinichi

PA Bridgestone Corporation, Japan

SO PCT Int. Appl., 110 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004017452	A1	20040226	WO 2003-JP9983	20030806
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	EP 1536508	A1	20050601	EP 2003-788043	20030806
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
PRAI	JP 2002-235393	A	20020813		

JP 2002-235405 A 20020813
JP 2002-235408 A 20020813
JP 2002-288939 A 20021001
JP 2002-317340 A 20021031
JP 2002-361067 A 20021212
JP 2002-361068 A 20021212
JP 2002-361069 A 20021212
JP 2002-361071 A 20021212
WO 2003-JP9983 W 20030806

AB An electrolyte for pigment-sensitized solar cells has an oxidation-reduction material loaded on a vulcanized rubber, a polyphosphazene, an EVA resin, or a porous body comprising a polymer that has a three-dimensional continuous network skeleton structure. The photoelectrochem. cell has the above electrolyte placed between dye-sensitized semiconductor electrodes and a counter electrode opposed to the semiconductor electrodes. The photoelectrochem. cells, using the above electrolyte, has improved generation efficiency, durability, and safety and less manufacturing cost.

IC ICM H01M014-00

ICS H01B001-06; H01L031-04

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST pigment sensitized photoelectrochem cell electrolyte; electrolyte vulcanized rubber polyphosphazene EVA resin porous polymer; oxidn redn material electrolyte photoelectrochem cell

IT Electrolytes

Photoelectrochemical cells

(electrolytes containing oxidation-reduction material loaded vulcanized rubbers, polyphosphazenes, EVA resin, or porous polymers for photoelectrochem. cells)

IT Polycarbonates, uses

Polyesters, uses

RL: DEV (Device component use); USES (Uses)

(electrolytes containing oxidation-reduction material loaded vulcanized rubbers, polyphosphazenes, EVA resin, or porous polymers for photoelectrochem. cells)

IT 7553-56-2, Iodine, uses 7631-86-9, Silica, uses 9010-79-1, Ethylene-propylene copolymer 9019-71-0, Butadiene-styrene-vinylpyridine copolymer 10377-51-2, Lithium iodide 13463-67-7, Titania, uses 25038-59-9, PET, uses 50926-11-9, ITO 92713-54-7 218151-78-1, 1,2-Dimethyl-3-propyl imidazolium iodide 663617-66-1 663617-67-2

RL: DEV (Device component use); USES (Uses)

(electrolytes containing oxidation-reduction material loaded vulcanized rubbers, polyphosphazenes, EVA resin, or porous polymers for photoelectrochem. cells)

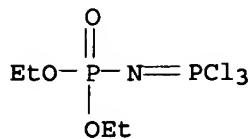
IT 92713-54-7

RL: DEV (Device component use); USES (Uses)

(electrolytes containing oxidation-reduction material loaded vulcanized rubbers, polyphosphazenes, EVA resin, or porous polymers for photoelectrochem. cells)

RN 92713-54-7 HCPLUS

CN Phosphoramidic acid, (trichlorophosphoranylidene)-, diethyl ester (9CI) (CA INDEX NAME)



RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 5 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:139816 HCAPLUS

DN 140:184695

TI Secondary nonaqueous electrolyte battery

IN Narioka, Yoshinori; Mori, Sumio

PA Japan Storage Battery Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 14 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2004055208	A2	20040219	JP 2002-208280	20020717
PRAI JP 2002-208280		20020717		

AB The **battery** has an active mass containing anode and a Li salt dissolved nonaq. electrolyte solution; where the electrolyte solution has a halo-containing phosphazene compound and the anode has a binder comprising a non-halo material.

IC ICM H01M010-40

ICS H01M004-02; H01M004-62

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary **battery** electrolyte halo contg phosphazene compd; anode binder nonhalo compd secondary **battery**

IT Fluoropolymers, uses

Styrene-butadiene rubber, uses

RL: DEV (Device component use); USES (Uses)
(anode binder; anode binders containing non-halo materials for secondary lithium **batteries**)

IT **Battery** anodes

(anode binders containing non-halo materials for secondary lithium **batteries**)

IT **Battery** electrolytes

(electrolyte solns. having halo-containing phosphazene compds. for secondary lithium **batteries**)

IT Secondary **batteries**

(secondary lithium **batteries** having halo-containing phosphazene compds. in electrolyte solns. and non-halo materials in anodes)

IT 7782-42-5, Graphite, uses

RL: DEV (Device component use); USES (Uses)
(anode active mass; anode binders containing non-halo materials for secondary lithium **batteries**)

IT 24937-79-9, Pvdf

RL: DEV (Device component use); USES (Uses)
(anode binder; anode binders containing non-halo materials for secondary lithium **batteries**)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 21324-40-3, Lithium hexafluorophosphate 657348-91-9

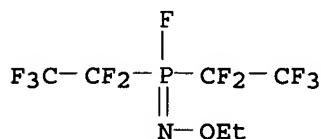
RL: DEV (Device component use); USES (Uses)
(electrolyte solns. having halo-containing phosphazene compds.
for secondary lithium batteries)

IT 9003-55-8
RL: DEV (Device component use); USES (Uses)
(styrene-butadiene rubber, anode binder; anode binders containing non-halo
materials for secondary lithium batteries)

IT 657348-91-9
RL: DEV (Device component use); USES (Uses)
(electrolyte solns. having halo-containing phosphazene compds.
for secondary lithium batteries)

RN 657348-91-9 HCPLUS

CN Phosphinimidic fluoride, N-ethoxy-P,P-bis(pentafluoroethyl) - (9CI) (CA
INDEX NAME)



L10 ANSWER 6 OF 14 HCPLUS COPYRIGHT 2005 ACS on STN
AN 2003:396161 HCPLUS
DN 138:392003
TI Low-temperature electrolysis of alkali metal halides for metal preparation
IN Jacobson, Stephen Ernest; Mah, Dennie Turin
PA USA
SO U.S. Pat. Appl. Publ., 8 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2003094379	A1	20030522	US 2001-989880	20011121
US 6787019	B2	20040907		
PRAI US 2001-989880		20011121		

AB A low temperature electrolysis process that can be used for producing an alkali metal from an alkali metal halide is provided, which comprises electrolyzing an electrolyte composition comprising at least one alkali metal halide and a co-electrolyte comprising (a) a halide or halides of Group IIIA, Group IB, or Group VIII metals and (b) a halide-donating compound

IC ICM C21B015-00
INCL 205406000; 075711000
CC 72-5 (Electrochemistry)
Section cross-reference(s): 49, 56

ST low temp electrolysis alkali metal halides halide donation compd; alkali metal prep electrolysis low temp halide

IT Alkali metal halides, reactions
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(low-temperature electrolysis for metal preparation)

IT Electrolysis
(low-temperature electrolysis of alkali metal halides for metal preparation)

IT Salts, uses
RL: NUU (Other use, unclassified); USES (Uses)
(molten; low-temperature electrolysis of alkali metal halides for metal

preparation in electrolyte containing halide donation compound)

IT Halides

RL: NUU (Other use, unclassified); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)
(of aluminum, boron, nickel, antimony, iron, cobalt; low-temperature electrolysis of alkali metal halides for metal preparation in electrolyte containing)

IT Alkali metals, processes

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PREP (Preparation); PROC (Process)

(preparation by low-temperature electrolysis of alkali metal halides)

IT 7782-50-5, Chlorine, processes

RL: CPS (Chemical process); FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); FORM (Formation, nonpreparative); PROC (Process)

(formation during low-temperature electrolysis of alkali metal halides for metal preparation in electrolyte containing halide donation compound)

IT 7647-14-5, Sodium chloride, reactions

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(low-temperature electrolysis for metal preparation in electrolyte containing AlCl₃ and trichlorophosphazosulfonyl chloride)

IT 124-63-0, Methanesulfonyl chloride 14700-21-1,

Trichlorophosphazosulfonyl chloride

RL: NUU (Other use, unclassified); USES (Uses)
(low-temperature electrolysis of alkali metal halides for metal preparation in electrolyte containing)

IT 7446-70-0P, Aluminum chloride, uses 13966-08-0P

RL: NUU (Other use, unclassified); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)

(low-temperature electrolysis of alkali metal halides for metal preparation in electrolyte containing)

IT 7440-23-5P, Sodium, processes

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PREP (Preparation); PROC (Process)

(preparation by low-temperature electrolysis of sodium chloride in electrolyte containing AlCl₃ and trichlorophosphazosulfonyl chloride)

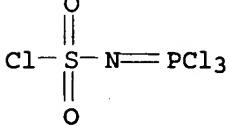
IT 14700-21-1, Trichlorophosphazosulfonyl chloride

RL: NUU (Other use, unclassified); USES (Uses)

(low-temperature electrolysis of alkali metal halides for metal preparation in electrolyte containing)

RN 14700-21-1 HCPLUS

CN Sulfamoyl chloride, (trichlorophosphoranylidene)- (7CI, 8CI, 9CI) (CA INDEX NAME)

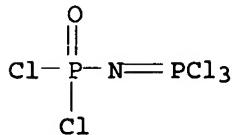


IT 13966-08-0P

RL: NUU (Other use, unclassified); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)

(low-temperature electrolysis of alkali metal halides for metal preparation in electrolyte containing)

RN 13966-08-0 HCAPLUS
 CN Phosphorimidic trichloride, (dichlorophosphinyl)- (6CI, 8CI, 9CI) (CA
 INDEX NAME)



RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 7 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2001:873246 HCAPLUS
 DN 136:20156
 TI Preparation of sulfonyl-containing phosphazenes
 IN Narita, Yukio; Saito, Tadashi; Ohara, Nobuhiko; Wakui, Atsushi; Kamata, Tomohisa
 PA Nippon Chemical Industrial Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2001335590	A2	20011204	JP 2000-157053	20000526
PRAI JP 2000-157053		20000526		
OS CASREACT 136:20156; MARPAT 136:20156				
AB The title (R1O)3P:NSO ₂ R ₂ [R ₁ = (CH ₂ CH ₂ O) _n Me which may be substituted with halo (n = 1-5); R ₂ = C ₁₋₁₂ (halo)alkyl, (halo)phenyl, C ₁₋₄ alkyl-(halo)phenyl] (I), useful as electrolytes for nonaq. secondary batteries, flame retardants for lubricants, etc., are prepared by treating phosphorus pentahalides with H ₂ NSO ₂ R ₂ (R ₂ = same as above) and then treating the resulting X ₃ P:NSO ₂ R ₂ (R ₂ = same as above; X = halo) (II) with R ₁ OM (R ₁ = same as above; M = alkali metal). E.g., a mixture of PCl ₅ , PhSO ₂ NH ₂ , toluene, and THF was stirred at room temperature for 2.5 h to give 96.9% II (R ₂ = Ph, X = Cl) (III). An alcoholate solution, prepared from MeOCH ₂ CH ₂ OH and NaH in THF, was added dropwise to a mixture of III and toluene at 0-10° and then the reaction mixture was stirred at room temperature for 3.5 h to give 78.4% I (R ₁ = CH ₂ CH ₂ OMe, R ₂ = Ph). ICM C07F009-24 ICS H01G009-038; H01G009-035; H01M006-16; H01M010-40 CC 29-7 (Organometallic and Organometalloidal Compounds) Section cross-reference(s): 52 ST methoxyethylphosphazosulfonylbenzene prepn electrolyte nonaq secondary battery; phosphazosulfonyl compd prepn electrolyte nonaq secondary battery; phosphorus pentahalide condensation sulfonamide; halophosphazosulfonyl compd condensation glycol ether alcoholate IT Battery electrolytes (preparation of phosphazosulfonyl compds. as electrolytes for nonaq. secondary batteries) IT Phosphazenes RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation) (preparation of phosphazosulfonyl compds. as electrolytes for nonaq. secondary batteries)				

IT 111-77-3P, Diethylene glycol monomethyl ether 1525-81-1P,
 N-4-Fluorobenzenesulfonyl-P,P,P-trichlorophosphazene 5666-55-7P,
 Trichlorophosphazosulfonylbenzene 19278-10-5P, Diethylene glycol
 monomethyl ether sodium salt 29651-24-9P 377780-52-4P,
 N-2,4-Difluorobenzenesulfonyl-P,P,P-trichlorophosphazene
 RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic
 preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of phosphazosulfonyl compds. as electrolytes for
 nonaq. secondary batteries)

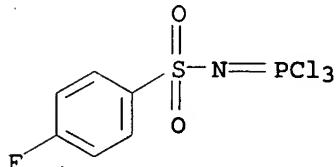
IT 377780-53-5P 377780-54-6P 377780-55-7P 377780-56-8P
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
 (Preparation)
 (preparation of phosphazosulfonyl compds. as electrolytes for nonaq.
 secondary batteries)

IT 98-10-2, Benzenesulfonamide 109-86-4, Ethylene glycol monomethyl ether
 402-46-0, 4-Fluorobenzenesulfonamide 3139-99-9, Ethylene glycol
 monomethyl ether sodium salt 3144-09-0, Methanesulfonamide 10026-13-8,
 Phosphorus pentachloride 13656-60-5, 2,4-Difluorobenzenesulfonamide
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of phosphazosulfonyl compds. as electrolytes for nonaq.
 secondary batteries)

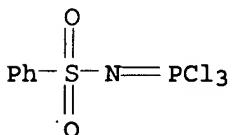
IT 1525-81-1P, N-4-Fluorobenzenesulfonyl-P,P,P-trichlorophosphazene
 5666-55-7P, Trichlorophosphazosulfonylbenzene 29651-24-9P
 377780-52-4P, N-2,4-Difluorobenzenesulfonyl-P,P,P-
 trichlorophosphazene
 RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic
 preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of phosphazosulfonyl compds. as electrolytes for
 nonaq. secondary batteries)

RN 1525-81-1 HCAPLUS

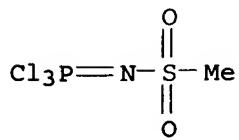
CN Phosphorimidic trichloride, [(4-fluorophenyl)sulfonyl]- (9CI) (CA INDEX
 NAME)



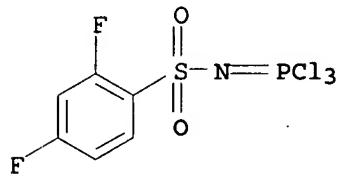
RN 5666-55-7 HCAPLUS
 CN Phosphorimidic trichloride, (phenylsulfonyl)- (6CI, 8CI, 9CI) (CA INDEX
 NAME)



RN 29651-24-9 HCAPLUS
 CN Phosphorimidic trichloride, (methylsulfonyl)- (8CI, 9CI) (CA INDEX NAME)



RN 377780-52-4 HCAPLUS
 CN Phosphorimidic trichloride, [(2,4-difluorophenyl)sulfonyl]- (9CI) (CA
 INDEX NAME)



L10 ANSWER 8 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2001:369718 HCAPLUS
 DN 134:367047
 TI Preparation of sulfonyl-containing phosphazenes as flame retardants for
 battery electrolytes
 IN Tsuchiya, Tsubasa; Kawakabe, Hiroshi; Wakui, Atsushi; Kamata, Tomohisa
 PA Nippon Chemical Industrial Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2001139584	A2	20010522	JP 1999-325440	19991116
PRAI JP 1999-325440		19991116		
OS CASREACT 134:367047; MARPAT 134:367047				
AB Title compds. (R1O)3P:NSO3R1 or (R2O)3P:NSO2N:P(OR2)3 [R1, R2 = (ether-containing) C1-10 alkyl, haloalkyl] are prepared by reaction of PX5 (X = halo) with sulfamic acid or sulfamide followed by ROM (R = same as R1 or R2; M = alkali metal). PC15 was treated with sulfamic acid in PhCl at 100-105° for 12 h to give 68.8% Cl3P:NSO2Cl, which was treated with diethylene glycol monomethyl ether alcoholate in THF at -22 to -20° for 1 day to give 75.2% (MeOC2H4OC2H4O)3P:NSO3C2H4OC2H4OMe.				
IC ICM C07F009-24				
IC S C09K021-12				
CC 29-7 (Organometallic and Organometalloidal Compounds) Section cross-reference(s) : 52				
ST sulfonyl phosphazene prep flame retardant electrolyte; battery electrolyte flame retardant phosphazene prep; sulfamic acid reaction phosphorus pentahalide alcoholate; sulfamide reaction phosphorus pentahalide alcoholate				
IT Battery electrolytes Fireproofing agents (preparation of sulfonyl-containing phosphazenes as flame retardants for battery electrolytes)				
IT Metal alkoxides RL: RCT (Reactant); RACT (Reactant or reagent)				

(preparation of sulfonyl-containing phosphazenes as flame retardants for
battery electrolytes)

IT 109-86-4D, Ethylene glycol monomethyl ether, salts 111-77-3D, Diethylene
glycol monomethyl ether, salts 141-52-6, Sodium ethoxide 5329-14-6,
Sulfamic acid 7803-58-9, Sulfamide 10026-13-8, Phosphorus
pentachloride

RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of sulfonyl-containing phosphazenes as flame retardants for
battery electrolytes)

IT 14259-65-5P, Bis(trichlorophosphazo) sulfone 14700-21-1P
, Trichlorophosphazosulfonyl chloride

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)

(preparation of sulfonyl-containing phosphazenes as flame retardants for
battery electrolytes)

IT 72250-12-5P 271771-13-2P 271771-14-3P 271771-15-4P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material
use); PREP (Preparation); USES (Uses)

(preparation of sulfonyl-containing phosphazenes as flame retardants for
battery electrolytes)

IT 14259-65-5P, Bis(trichlorophosphazo) sulfone 14700-21-1P

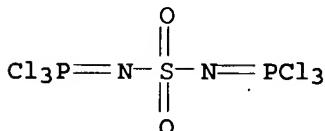
, Trichlorophosphazosulfonyl chloride

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)

(preparation of sulfonyl-containing phosphazenes as flame retardants for
battery electrolytes)

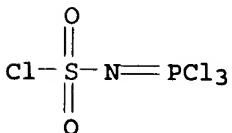
RN 14259-65-5 HCPLUS

CN Phosphorimidic trichloride, sulfonylbis- (9CI) (CA INDEX NAME)



RN 14700-21-1 HCPLUS

CN Sulfamoyl chloride, (trichlorophosphoranylidene)- (7CI, 8CI, 9CI) (CA
INDEX NAME)



L10 ANSWER 9 OF 14 HCPLUS COPYRIGHT 2005 ACS on STN

AN 1998:686074 HCPLUS

DN 130:25419

TI Polyphosphazenes with Novel Architectures: Influence on Physical
Properties and Behavior as Solid Polymer Electrolytes

AU Allcock, Harry R.; Sunderland, Nicolas J.; Ravikiran, Ramakrishna; Nelson,
James M.

CS Department of Chemistry, The Pennsylvania State University, University
Park, PA, 16802, USA

SO Macromolecules (1998), 31(23), 8026-8035

CODEN: MAMOBX; ISSN: 0024-9297

PB American Chemical Society

DT Journal

LA English

AB Three types of polyphosphazenes with different architectures have been synthesized and characterized. The influence of the polymer architecture on solid ionic conductivity was of particular interest. The first type includes linear oligo- and polyphosphazenes with the general formula $[N:P(OCH_2CH_2OCH_2CH_2OCH_3)_2]_n$ (MEEP) with different chain lengths. The second type consists of a series of tri-armed star-branched polyphosphazenes with the general formula $N(CH_2CH_2NH(CF_3CH_2O)_2P[N:P(OCH_2CH_2OCH_2CH_2OCH_3)_2]_n)_3$ with different arm lengths. These were synthesized via the reaction of the tridentate initiator $[N(CH_2CH_2NH(CF_3CH_2O)_2P:N-PCl_3+)_3]_3$ with the phosphoranimine $Cl_3P:NSiMe_3$ in CH_2Cl_2 followed by halogen replacement with sodium (methoxyethoxy)ethoxide. The mol. wts. in this system were carefully controlled by variation of the monomer-to-initiator ratios, and the effect of polymer mol. weight on solid ionic conductivity was examined. The third polymer system was designed to examine the effect of complex branching on ionic conductivity. Thus, a highly branched polymer containing five branches from a cyclotriphosphazene pendent side group (with 26 ethyleneoxy units per repeat unit) was synthesized. The conductivity of this polymer in the presence of three different salts has been measured and compared to the behavior of MEEP with a corresponding mol. weight. The mechanism of ion transport in these systems is discussed.

CC 35-7 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 37, 52, 76

ST polyphosphazene novel structure lithium complex ionic cond

IT Polymerization

Polymerization

Polymerization catalysts

Polymerization catalysts

(cationic, living; preparation of polyphosphazenes with novel architecture, their phys. properties, and ionic conductivity of solid polymer electrolytes prepared by complexation of polyphosphazenes with lithium)

IT Battery electrolytes

Glass transition temperature

Ionic conductivity

Molecular weight

Polymer electrolytes

(preparation of polyphosphazenes with novel architecture, their phys. properties, and ionic conductivity of solid polymer electrolytes prepared by complexation of polyphosphazenes with lithium)

IT 131841-09-3P

RL: SPN (Synthetic preparation); PREP (Preparation)

(byproduct in preparation of polyphosphazenes with novel architecture, their phys. properties, and ionic conductivity of solid polymer electrolytes prepared by complexation of polyphosphazenes with lithium)

IT 10026-13-8, Phosphorus pentachloride

RL: CAT (Catalyst use); USES (Uses)

(catalyst; preparation of polyphosphazenes with novel architecture, their phys. properties, and ionic conductivity of solid polymer electrolytes prepared by complexation of polyphosphazenes with lithium)

IT 33454-82-9, Lithium triflate

RL: MOA (Modifier or additive use); USES (Uses)

(electrolytes; preparation of polyphosphazenes with novel architecture, their phys. properties, and ionic conductivity of solid polymer electrolytes prepared by complexation of polyphosphazenes with lithium)

IT 188186-00-7 216530-14-2

RL: RCT (Reactant); RACT (Reactant or reagent)

(initiator used as core for branched polyphosphazenes; preparation of

polyphosphazenes with novel architecture, their phys. properties, and ionic conductivity of solid polymer electrolytes prepared by complexation of polyphosphazenes with lithium)

IT 19278-10-5DP, 2-(2-Methoxyethoxy)ethanol sodium salt, reaction products with poly(dichlorophosphazene), lithium complexes 26085-02-9DP, Poly(dichlorophosphazene), derivs., lithium complexes 40678-60-2DP, derivs., lithium complexes
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (linear and branched; preparation of polyphosphazenes with novel architecture, their phys. properties, and ionic conductivity of solid polymer electrolytes prepared by complexation of polyphosphazenes with lithium)

IT 216530-18-6DP, reaction products with poly(dichlorophosphazene), lithium complexes
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (preparation of polyphosphazenes with novel architecture, their phys. properties, and ionic conductivity of solid polymer electrolytes prepared by complexation of polyphosphazenes with lithium)

IT 7439-93-2DP, Lithium, complexes with polyphosphazenes, preparation
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of polyphosphazenes with novel architecture, their phys. properties, and ionic conductivity of solid polymer electrolytes prepared by complexation of polyphosphazenes with lithium)

IT 110-87-2 112-27-6 19278-10-5, 2-(2-Methoxyethoxy)ethanol sodium salt
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reactant in preparation of polyphosphazenes with novel architecture, their phys. properties, and ionic conductivity of solid polymer electrolytes prepared by complexation of polyphosphazenes with lithium)

IT 60221-37-6P 132939-00-5P 216530-17-5P 216530-18-6P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (reactant in preparation of polyphosphazenes with novel architecture, their phys. properties, and ionic conductivity of solid polymer electrolytes prepared by complexation of polyphosphazenes with lithium)

IT 40678-60-2DP, derivs., lithium complexes
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (linear and branched; preparation of polyphosphazenes with novel architecture, their phys. properties, and ionic conductivity of solid polymer electrolytes prepared by complexation of polyphosphazenes with lithium)

RN 40678-60-2 HCPLUS
 CN Phosphorimidic trichloride, (trimethylsilyl)- (9CI) (CA INDEX NAME)

Cl₃P=N-SiMe₃

RE.CNT 44 THERE ARE 44 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 10 OF 14 HCPLUS COPYRIGHT 2005 ACS on STN
 AN 1998:681962 HCPLUS
 DN 129:262843
 TI High conductivity electrolyte solutions and secondary batteries using the solutions
 IN Angell, Charles Austen; Zhang, Sheng-Shui; Xu, Kang
 PA Arizona Board of Regents, USA
 SO U.S., 14 pp.
 CODEN: USXXAM

DT Patent
 LA English
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 5824433	A	19981020	US 1996-748009	19961112
PRAI US 1996-748009		19961112		
OS MARPAT 129:262843				

AB The electrolyte solns. contain an electrolyte solute and a sulfonyl/phospho compound solvent RSO_2X (X = halide and R = perfluoroalkyl group, perchlorinated group, $N:PX_3$) or $X_3P:NR'$ [R' = $P(O)X_2$ or C_1-6 alkyl group]. The solvent may contain Cl_3PNSO_2Cl , $Cl_3PNP(O)Cl_2$, Cl_3PNCH_3 , $Cl_3PNCH_2CH_3$, and/or $CF_3(CF_2)_3SO_2F$; and the electrolyte solute os $LiAlCl_4$ or $(CF_3SO_2)_2NLi$. The electrolyte may also contain a polymer.

IC ICM H01M006-14

INCL 429194000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium battery electrolyte solvent; battery electrolyte solvent sulfur phosphorous compd

IT Battery electrolytes
 (high conductivity electrolyte solns. containing sulfur-phosphorus compound electrolyte solvents for secondary lithium batteries and sodium/sulfur batteries)

IT 124-63-0, Methanesulfonyl chloride 9011-14-7, Pmma 14024-11-4,
 Aluminum lithium chloride ($LiAlCl_4$) 90076-65-6

RL: DEV (Device component use); USES (Uses)
 (high conductivity electrolyte solns. containing sulfur-phosphorus compound electrolyte solvents for secondary batteries)

IT 13966-08-0P 14700-21-1P 23453-30-7P
 44584-14-7P

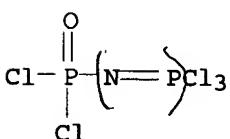
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
 (high conductivity electrolyte solns. containing sulfur-phosphorus compound electrolyte solvents for secondary batteries
)

IT 13966-08-0P 14700-21-1P 23453-30-7P
 44584-14-7P

RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
 (high conductivity electrolyte solns. containing sulfur-phosphorus compound electrolyte solvents for secondary batteries
)

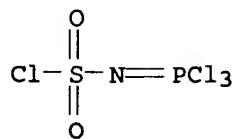
RN 13966-08-0 HCAPLUS

CN Phosphorimidic trichloride, (dichlorophosphinyl)- (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 14700-21-1 HCAPLUS

CN Sulfamoyl chloride, (trichlorophosphoranylidene)- (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 23453-30-7 HCAPLUS
 CN Phosphorimidic trichloride, methyl- (8CI, 9CI) (CA INDEX NAME)

Cl₃P=N-Me

RN 44584-14-7 HCAPLUS
 CN Phosphorimidic trichloride, ethyl- (9CI) (CA INDEX NAME)

Cl₃P=N-Et

RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 11 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 1997:443306 HCAPLUS
 DN 127:53454
 TI Electrochemically stable electrolytes which do not crystallize
 at ambient temperature
 IN Angell, Charles Austen; Zhang, Sheng Shui; Xu, Kang
 PA Arizona Board of Regents, USA
 SO PCT Int. Appl., 31 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9718159	A1	19970522	WO 1996-US18325	19961113
W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
US 5855809	A	19990105	US 1996-748008	19961112
AU 9676807	A1	19970605	AU 1996-76807	19961113

PRAI US 1995-6437P P 19951113
 US 1996-748008 A 19961112
 WO 1996-US18325 W 19961113
 AB The electrolytes are quasi-salt inorg. ionic liqs. which comprise the
 reaction product of a strong Lewis acid with an inorg. halide-donating
 mol., which comprises a substructure selected from NPX₃, SO₂X, and C(O)X,
 where X is a halogen. The strong Lewis acid is selected from AlCl₃, BC₁₃,
 SbCl₃, and FeCl₃. These quasi-salt inorg. ionic liquid mixts. are useful
 electrolytes.

IC ICM C01B021-06
 ICS C01B025-10; C01C001-02; H01B001-00

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 49

ST battery electrolyte electrochem stable; halide donating mol Lewis acid electrolyte

IT Battery electrolytes
 (electrochem. stable which do not crystallize at ambient temperature)

IT 7446-70-0D, Aluminum chloride (AlCl₃), reaction product with inorg. halide-donating mol., processes 7705-08-0D, Iron chloride (FeCl₃), reaction product with inorg. halide-donating mol., processes 10025-91-9D, Antimony chloride (SbCl₃), reaction product with inorg. halide-donating mol. 10294-34-5D, Boron chloride (BCl₃), reaction product with inorg. halide-donating mol.
 RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (electrochem. stable electrolytes from)

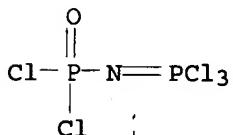
IT 75-36-5DP, Acetyl chloride, reaction product with aluminum chloride
 13966-08-0DP, reaction product with aluminum chloride
 14700-21-1DP, reaction product with aluminum chloride
 23453-30-7DP, reaction product with aluminum chloride
 44584-14-7DP, reaction product with boron chloride
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
 (electrochem. stable electrolytes from)

IT 2926-30-9, Sodium trifluoromethanesulfonate 7784-16-9, Sodium chloroaluminate 14024-11-4, Lithium chloroaluminate 33454-82-9, Lithium trifluoromethanesulfonate 90076-65-6, Lithium bis(trifluoromethylsulfonyl)imide 91742-21-1, Sodium bis(trifluoromethylsulfonyl)imide
 RL: MOA (Modifier or additive use); USES (Uses)
 (quasi-salt inorg. ionic liquid electrolytes containing)

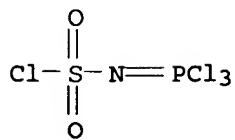
IT 13966-08-0DP, reaction product with aluminum chloride
 14700-21-1DP, reaction product with aluminum chloride
 23453-30-7DP, reaction product with aluminum chloride
 44584-14-7DP, reaction product with boron chloride
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
 (electrochem. stable electrolytes from)

RN 13966-08-0 HCPLUS

CN Phosphorimidic trichloride, (dichlorophosphinyl)- (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 14700-21-1 HCPLUS
 CN Sulfamoyl chloride, (trichlorophosphoranylidene)- (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 23453-30-7 HCAPLUS
 CN Phosphorimidic trichloride, methyl- (8CI, 9CI) (CA INDEX NAME)

Cl₃P=N-Me

RN 44584-14-7 HCAPLUS
 CN Phosphorimidic trichloride, ethyl- (9CI) (CA INDEX NAME)

Cl₃P=N-Et

L10 ANSWER 12 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 1997:440216 HCAPLUS
 DN 127:53456
 TI Sulfonyl/phospho-compound solvent for high-conductivity electrolyte
 solutions and secondary batteries incorporating these solutions
 IN Angell, Charles Austen; Zhang, Sheng Shui; Xu, Kang
 PA Arizona State University, Board of Regents, USA
 SO PCT Int. Appl., 21 pp.
 CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 9718595	A1	19970522	WO 1996-US18324	19961113
W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				

AU 9710524	A1	19970605	AU 1997-10524	19961113
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PRAI US 1995-6436P	P	19951113		
WO 1996-US18324	W	19961113		

OS MARPAT 127:53456

AB The solvent is selected from Cl₃PNSO₂Cl, Cl₃PNP(O)Cl₂, Cl₃PNCH₃, and
 Cl₃PNCH₂CH₃. A sulfonyl/phospho-compound electrolyte solution comprises an
 electrolyte solute and a sulfonyl/phospho-compound electrolyte solvent.

IC ICM H01M006-14

ICS H01M006-16; H01M006-04

CC 52-2 (Electrochemical, Radiational, and Thermal Energy
 Technology)

Section cross-reference(s): 49, 76

ST battery electrolyte solvent sulfonyl phospho compd

IT Battery electrolytes

(sulfonyl/phospho-compound solvent for high-conductivity)

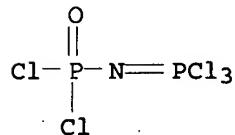
IT 124-63-0, Methyl sulfonyl chloride
 RL: DEV (Device component use); USES (Uses)
 (solvent for high-conductivity **battery** electrolyte solns.)

IT 13966-08-0P 14700-21-1P 23453-30-7P
 44584-14-7P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (solvent for high-conductivity **battery** electrolyte solns.)

IT 13966-08-0P 14700-21-1P 23453-30-7P
 44584-14-7P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (solvent for high-conductivity **battery** electrolyte solns.)

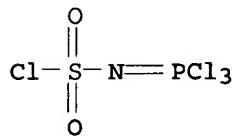
RN 13966-08-0 HCPLUS

CN Phosphorimidic trichloride, (dichlorophosphinyl)- (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 14700-21-1 HCPLUS

CN Sulfamoyl chloride, (trichlorophosphoranylidene)- (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 23453-30-7 HCPLUS

CN Phosphorimidic trichloride, methyl- (8CI, 9CI) (CA INDEX NAME)



RN 44584-14-7 HCPLUS

CN Phosphorimidic trichloride, ethyl- (9CI) (CA INDEX NAME)



L10 ANSWER 13 OF 14 HCPLUS COPYRIGHT 2005 ACS on STN
 AN 1996:744515 HCPLUS
 DN 126:149660
 TI Room temperature inorganic "quasi-molten salts" as alkali-metal electrolytes
 AU Xu, K.; Zhang, S.; Angell, C. A.
 CS Dep. Chem., Arizona State Univ., Tempe, AZ, 85287-1604, USA
 SO Journal of the Electrochemical Society (1996), 143(11), 3548-3554
 CODEN: JESOAN; ISSN: 0013-4651

PB Electrochemical Society

DT Journal

LA English

AB Room temperature inorg. liqs. of high ionic conductivity were prepared by reacting Lewis

acid AlCl_3 with sulfonyl chlorides. The mechanism is not clear at this time since a crystal structure study of the 1:1 complex with $\text{CH}_3\text{SO}_2\text{Cl}$ ($T_m = 30^\circ$) is not consistent with a simple chloride transfer to create AlClO_4^- anions. The liquid is in a state somewhere between ionic and mol. A new term quasi-molten salt is adopted to describe this state. A comparably conducting liquid can be made using BCl_3 in place of AlCl_3 . Unlike their organic counterparts based on ammonium cations (e.g., pyridinium or imidazolium) which reduce in the presence of alkali metals, this inorg. class of cation shows great stability against electrochem. reduction (.apprx.-1.0 V vs. Li^+/Li), with the useful consequence that reversible lithium and sodium metal deposition/stripping can be supported. The electrochem. window for these quasi-salts with AlCl_3 ranges up to 5.0 V, and their room temperature conductivities exceed 10^{-4} S/cm. They dissolve lithium and sodium tetrachloroaluminates up to mole fraction .apprx.0.6 at 100° and intermediate compns. are permanently stable at ambient. The resultant lithium or sodium salt solns. exhibit electrochem. windows of 4.5-5.0 V vs. Li^+/Li or Na^+/Na and show room temperature conductivities of 10^{-30} .apprx. 10^{-25} S/cm. In preliminary charge/discharge tests, the cell $\text{Li}/\text{quasi-ionic liquid}/\text{Li}_{1+x}\text{Mn}_2\text{O}_4$ showed a discharge capacity of .apprx.110 mA-h/(g of cathode) and sustained 80% of the initial capacity after 60 cycles, indicating that these quasi-molten salt-based electrolytes are promising candidates for alkali-metal batteries.

CC 72-2 (Electrochemistry)

ST Section cross-reference(s): 52, 68, 76

ST room temp inorg quasi molten salt; alkali metal electrolyte quasi molten salt; sulfonyl aluminum chloride melt electrochem window; phosphoryl aluminum chloride melt electrochem window; electrochem potential window sulfonyl phosphoryl chloroaluminate; battery electrolyte inorg quasi molten salt

IT Electric potential

(electrochem. potential window of room temperature inorg. quasi-molten salts from aluminum chloride and sulfonyl chloride or phosphoryl chloride)

IT Battery electrolytes

(of sulfonyl chloride or phosphoryl chloride compds. with aluminum chloride)

IT Ionic conductivity

(of sulfonyl chloride or phosphoryl chloride compds. with aluminum chloride or boron chloride)

IT 7784-16-9, Sodium tetrachloroaluminate

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)

(cyclic voltammetry of NaAlCl_4 in trichlorophosphazosulfonyl chloride-aluminum chloride compound)

IT 14024-11-4, Lithium tetrachloroaluminate

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)

(cyclic voltammetry of trichlorophosphazosulfonyl chloride-aluminum chloride compound with and without LiAlCl_4 and of LiAlCl_4 in methanesulfonyl chloride)

IT 186696-36-6P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(electrochem. potential window and room temperature inorg.

quasi-molten salts as alkali-metal electrolytes)

IT 186696-38-8P 186696-40-2P 186696-41-3P 186696-43-5P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (ionic conductivity and **electrochem.** potential window and room temperature
 inorg. quasi-molten salts as alkali-metal electrolytes)

IT 75-23-0, Ethylamine-boron trifluoride complex (1:1) 593-51-1,
 Methylamine hydrochloride 5329-14-6, Sulfamic acid 7783-20-2,
 Diammonium sulfate, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction with PCl_5)

IT 75-36-5, Acetyl chloride 124-63-0, Methanesulfonyl chloride
 RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
 (reaction with aluminum chloride: **electrochem.** potential
 window and room temperature inorg. quasi-molten salts as alkali-metal
 electrolytes)

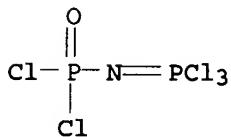
IT 6041-61-8P 13966-08-0P 14700-21-1P,
 Trichlorophosphazosulfonyl chloride
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP
 (Preparation); RACT (Reactant or reagent)
 (reaction with aluminum chloride: **electrochem.** potential
 window and room temperature inorg. quasi-molten salts as alkali-metal
 electrolytes)

IT 7446-70-0, Aluminum chloride, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction with sulfonyl chloride or phosphoryl chloride for
 quasi-molten salts)

IT 13966-08-0P 14700-21-1P, Trichlorophosphazosulfonyl
 chloride
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP
 (Preparation); RACT (Reactant or reagent)
 (reaction with aluminum chloride: **electrochem.** potential
 window and room temperature inorg. quasi-molten salts as alkali-metal
 electrolytes)

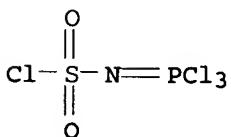
RN 13966-08-0 HCPLUS

CN Phosphorimidic trichloride, (dichlorophosphinyl)- (6CI, 8CI, 9CI) (CA
 INDEX NAME)



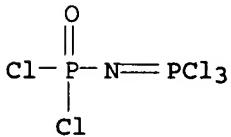
RN 14700-21-1 HCPLUS

CN Sulfamoyl chloride, (trichlorophosphoranylidene)- (7CI, 8CI, 9CI) (CA
 INDEX NAME)

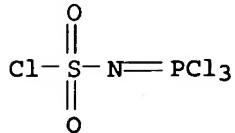


L10 ANSWER 14 OF 14 HCPLUS COPYRIGHT 2005 ACS on STN
 AN 1996:582562 HCPLUS

DN 125:252809
 TI Inorganic electrolyte solutions and gels for rechargeable lithium batteries
 AU Xu, Kang; Day, Natalie D.; Angell, C. Austen
 CS Dep. Chem., Arizona State Univ., Tempe, AZ, 85287-1604, USA
 SO Journal of the Electrochemical Society (1996), 143(9), L209-L211
 CODEN: JESOAN; ISSN: 0013-4651
 PB Electrochemical Society
 DT Journal
 LA English
 AB A class of inorg. oxychloride compds. have been evaluated for use as electrolytic solvents in rechargeable lithium batteries. Compared with SO₂-based electrolytes, these showed much improved safety while maintaining room temperature conductivities of 10-3-10-2 S/cm and electrochem. voltage windows of 4.5-5.5 V vs. Li⁺/Li and supporting reversible Li metal deposition/stripping. With the addition of 2-5% polymer, the solns. acquire rubbery character with little loss of conductivity and no change in electrochem. stability. Preliminary charge/discharge tests with intercalation-type cathode as well as sulfur-based cathode showed that these inorg. electrolytes can operate with excellent reversibility.
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST lithium battery inorg electrolyte soln gel; safety lithium battery inorg electrolyte oxychloride
 IT Battery electrolytes
 (inorg. electrolyte solns. and gels for rechargeable lithium batteries)
 IT Electric conductivity and conduction
 (ionic, inorg. electrolyte solns. and gels for rechargeable lithium batteries)
 IT 9011-14-7, Pmma
 RL: MOA (Modifier or additive use); USES (Uses)
 (electrolyte additive; inorg. electrolyte solns. and gels for rechargeable lithium batteries)
 IT 14024-11-4, Lithium tetrachloroaluminate 90076-65-6
 RL: DEV (Device component use); USES (Uses)
 (electrolyte; inorg. electrolyte solns. and gels for rechargeable lithium batteries)
 IT 124-63-0, Methane sulfonylchloride 13966-08-0 14700-21-1
 , Trichlorophosphazosulfonyl chloride
 RL: DEV (Device component use); PRP (Properties); USES (Uses)
 (solvent; inorg. electrolyte solns. and gels for rechargeable lithium batteries)
 IT 13966-08-0 14700-21-1, Trichlorophosphazosulfonyl chloride
 RL: DEV (Device component use); PRP (Properties); USES (Uses)
 (solvent; inorg. electrolyte solns. and gels for rechargeable lithium batteries)
 RN 13966-08-0 HCPLUS
 CN Phosphorimidic trichloride, (dichlorophosphinyl)- (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 14700-21-1 HCPLUS
 CN Sulfamoyl chloride, (trichlorophosphoranylidene)- (7CI, 8CI, 9CI) (CA
 INDEX NAME)



=> => s 117-120
 L24 0 (L17 OR L18 OR L19 OR L20)

=> d que
 L13 STR

4
 A
 {
 P~N~X
 1 2 3

formula 2

187 structures from pulse

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 4

STEREO ATTRIBUTES: NONE

L15 187 SEA FILE=REGISTRY SSS FUL L13
 L16 96 SEA FILE=HCPLUS ABB=ON L15
 L17 0 SEA FILE=HCPLUS ABB=ON L16 (L) ELECTROLYT?
 L18 0 SEA FILE=HCPLUS ABB=ON L16 AND ELECTROLYT?
 L19 0 SEA FILE=HCPLUS ABB=ON L16 AND BATTER?
 L20 0 SEA FILE=HCPLUS ABB=ON L16 AND ELECTROCHEM?/SC, SX, AB, BI
 L24 0 SEA FILE=HCPLUS ABB=ON (L17 OR L18 OR L19 OR L20)

*no answers
 with utility*

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* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *

Structure search iteration limits have been increased. See HELP SLIMITS for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:

<http://www.cas.org/ONLINE/DBSS/registryss.html>

```
=> d que 123
L13      STR
4
A
{
P~^N~^X
1 2 3
```

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 4

STEREO ATTRIBUTES: NONE

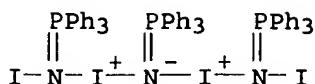
L15 187 SEA FILE=REGISTRY SSS FUL L13
L23 7 SEA FILE=REGISTRY ABB=ON L15 AND 3-15/P

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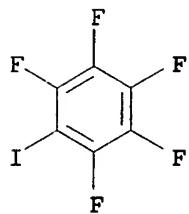
L23 7 ANSWERS REGISTRY COPYRIGHT 2005 ACS on STN
IN Iodine(1+), bis(N-iodo-P,P,P-triphenylphosphine imide-κN) [μ-(P,P,P-triphenylphosphine imidato-κN:κN)]di-, iodide, compd.
with pentafluoriodobenzene (1:2) (9CI)
MF C54 H45 I4 N3 P3 . 2 C6 F5 I . I

CM 1

7 structures with
3-15 phosphorus
per claim



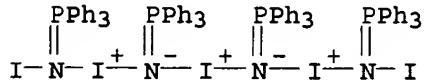
CM 2



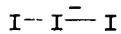
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):6

L23 7 ANSWERS REGISTRY COPYRIGHT 2005 ACS on STN
 IN Iodine(1+), bis(N-iodo-P,P,P-triphenylphosphine imide- κ N)bis[μ -(P,P,P-triphenylphosphine imidato- κ N: κ N)]tri-, (triiodide)
 (9CI)
 MF C72 H60 I5 N4 P4 . I3

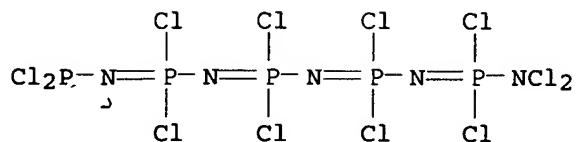
CM 1



CM 2

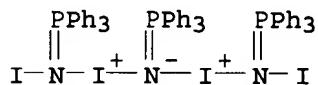


L23 7 ANSWERS REGISTRY COPYRIGHT 2005 ACS on STN
 IN Phosphoramidimidic dichloride, [dichloro[[dichloro(dichloroamino)phosphoronylidene]amino]phosphoronylidene][P,P-dichloro-N-(dichlorophosphino)phosphinimyl]- (9CI)
 MF Cl12 N5 P5



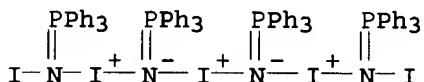
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L23 7 ANSWERS REGISTRY COPYRIGHT 2005 ACS on STN
 IN Iodine(1+), bis(N-iodo-P,P,P-triphenylphosphine imide- κ N) [μ -(P,P,P-triphenylphosphine imidato- κ N: κ N)]di-, iodide (9CI)
 MF C54 H45 I4 N3 P3 . I
 CI CCS, COM

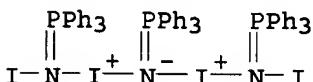


● I⁻

L23 7 ANSWERS REGISTRY COPYRIGHT 2005 ACS on STN
 IN Iodine(1+), bis(N-iodo-P,P,P-triphenylphosphine imide- κ N)bis[μ -(P,P,P-triphenylphosphine imidato- κ N: κ N)]tri- (9CI)
 MF C72 H60 I5 N4 P4
 CI CCS, COM

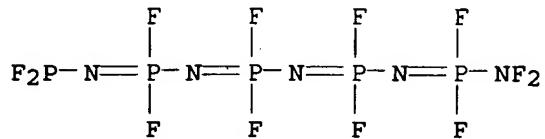


L23 7 ANSWERS REGISTRY COPYRIGHT 2005 ACS on STN
 IN Iodine(1+), bis(N-iodo-P,P,P-triphenylphosphine imide- κ N) [μ -(P,P,P-triphenylphosphine imidato- κ N: κ N)]di- (9CI)
 MF C54 H45 I4 N3 P3
 CI CCS, COM



L23 7 ANSWERS REGISTRY COPYRIGHT 2005 ACS on STN
 IN Phosphoramidimidic difluoride, N-[[[(difluoroamino)difluorophosphoranylidene]amino]difluorophosphoranylidene]-N'-[N-(difluorophosphino)-P,P-

MF **difluorophosphinimyl] - (9CI)**
F12 N5 P5



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=> s 123
L25 2 L23
=> d 125 bib abs ind hitstr 1-2

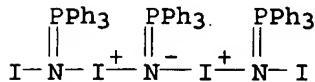
2 CA references from the 7 structures

L25 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1999:94318 HCAPLUS
DN 130:267497
TI Domino effect in the buildup of N-I-N-I chains of the N-iodine(triphenylphosphine)imine
AU Grebe, Jutta; Geiseler, Gertraud; Harms, Klaus; Neumuller, Bernhard; Dehnicke, Kurt
CS Fachbereich Chemie der Universitat, Marburg, D-35032, Germany
SO Angewandte Chemie, International Edition (1999), 38(1/2), 222-225
CODEN: ACIEF5; ISSN: 1433-7851
PB Wiley-VCH Verlag GmbH
DT Journal

LA English
 AB Depending upon the stoichiometric ratio, the reaction of Ph₃PNI with iodine in CH₂Cl₂ gave [I(INPPh₃)₂]⁺I₃⁻ (1) and [I(INPPh₃)₄]⁺I₃⁻ (2). Reaction of INPPh₃ with I₂ in the presence of 1,4-diiodotetrafluorobenzene in CH₂Cl₂ gave [I(INPPh₃)₃]⁺[I(C₆F₄I₂)]⁻ (3). The crystal structure of 1-3 were determined
 CC 29-7 (Organometallic and Organometalloidal Compounds)
 Section cross-reference(s): 75
 ST nitrogen iodine chain triphenyl phosphine imine prepn structure; triphenylphosphine imine nitrogen iodine chain prepn structure; crystal mol structure nitrogen iodine chain triphenylphosphine imine
 IT Crystal structure
 Molecular structure
 (of nitrogen iodine chain triphenylphosphine imine complexes)
 IT 221354-50-3P 221354-51-4P 222412-29-5P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (preparation and crystal structure of)
 IT 221354-46-7P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (preparation and mol. structure of)
 IT 392-57-4, 1,4-Diiodotetrafluorobenzene
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction of iodine(triphenylphosphine)imine with iodine in presence of)
 IT 392-57-4, 1,4-Diiodotetrafluorobenzene
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction of iodine(triphenylphosphine)imine with iodine in presence of)
 IT 221354-50-3P 222412-29-5P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (preparation and crystal structure of)
 RN 221354-50-3 HCPLUS
 CN Iodine(1+), bis(N-iodo-P,P,P-triphenylphosphine imide- κ N) [μ - (P,P,P-triphenylphosphine imidato- κ N: κ N)]di-, iodide, compd. with pentafluoriodobenzene (1:2) (9CI) (CA INDEX NAME)

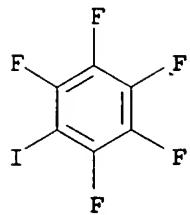
CM 1

CRN 221354-49-0
 CMF C54 H45 I4 N3 P3 . I
 CCI CCS

● I⁻

CM 2

CRN 827-15-6
 CMF C6 F5 I



RN 222412-29-5 HCAPLUS

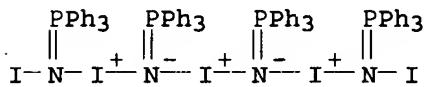
CN Iodine(1+), bis(N-iodo-P,P,P-triphenylphosphine imide- κ N).bis[μ -(P,P,P-triphenylphosphine imidato- κ N: κ N)]tri-, (triiodide) (9CI) (CA INDEX NAME)

CM 1

CRN 222412-28-4

CMF C72 H60 I5 N4 P4

CCI CCS



CM 2

CRN 14900-04-0

CMF I3

I-I-I

RE.CNT 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L25 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1977:501818 HCAPLUS

DN 87:101818

TI Conformational analysis of phosphazenes. A force field for the calculation of the molecular structures of halophosphazenes

AU Boyd, Richard H.; Kesner, Laya

CS Dep. Mater. Sci. Eng., Univ. Utah, Salt Lake City, UT, USA

SO Journal of the American Chemical Society (1977), 99(13), 4248-56

CODEN: JACSAT; ISSN: 0002-7863

DT Journal

LA English

AB Phosphazenes (-N:PR₂-)_n are a series of compds. that include rings of various sizes and conformations and linear high-mol.-weight polymers which the formal valence structure presents the possibility of π -electron delocalization. An attempt was made to see if phosphazene properties could be accounted for in terms of a conventional conformational model in which the mols. are subject to the influences of the energetics of bond twisting, bending, and stretching (and nonbonded interactions), but in

which there are not further effects on bonding in various size mols. than from these sources (i.e., the individual bond energies do not depend on the size of the mol.). The geometries, energies, and vibrational frequencies of a number of cyclic perhalophosphazenes were satisfactorily accounted for by such a model. A force field for conformational calcns. on chloro- and fluorophosphazenes is presented. Important and necessary features of the model include a 2-fold torsional potential with a low barrier (.apprx.1.4 kcal/mol) and a soft bending constant at the PNP valence angle (both absolutely and relative to the NPN angle).

CC 22-9 (Physical Organic Chemistry)

ST conformation phosphazene model; force field conformation phosphazene
IT Molecular mechanics

Potential energy and function

(for calcn. of conformation of halophosphazenes)

IT Conformation and Conformers

Molecular structure

(of halophosphazenes, force-field model for calcn. of)

IT Phosphonitrile compounds

RL: PRP (Properties)

(halo, conformational anal. of, force-field model for calcn. of)

IT 940-71-6 2950-45-0 13596-41-3 14700-00-6 15599-91-4

63722-41-8 63722-42-9

RL: PRP (Properties)

(conformation of, calcn. of)

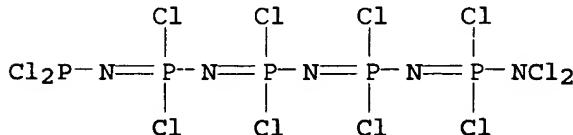
IT 63722-41-8 63722-42-9

RL: PRP (Properties)

(conformation of, calcn. of)

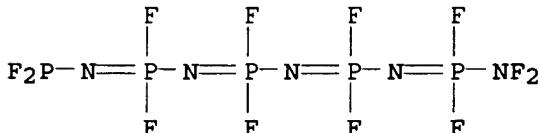
RN 63722-41-8 HCAPLUS

CN Phosphoramidimidic dichloride, [dichloro[[dichloro(dichloroamino)phosphoronylidene]amino]phosphoronylidene][P,P-dichloro-N-(dichlorophosphino)phosphinimyl]- (9CI) (CA INDEX NAME)



RN 63722-42-9 HCAPLUS

CN Phosphoramidimidic difluoride, N-[[[(difluoroamino)difluorophosphoronylide]amino]difluorophosphoronylidene]-N'-[N-(difluorophosphino)-P,P-difluorophosphinimyl]- (9CI) (CA INDEX NAME)



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